

What is Claimed is:

1. A high brightness diffuser, comprising:

5 a convex light diffusing piece with ridge-shape structure arranged on a surface thereof, being consisted of a plurality of large convex ridges and a plurality of small convex ridges, wherein, each of the convex ridges has a ridgeline, and the large ridge and small ridge are interlace-arranged, and the plural ridges along with the associated ridgelines are extending toward a same direction;

10 a concave light diffusing piece with ridge-shape structure arranged on a surface thereof, being consisted of a plurality of concave ridges associated with a ridgeline existing in between two adjacent ridges, wherein the plural ridges along with the associated ridgelines are extending toward a same direction; and

15 wherein, the two light diffusing pieces are stacked up by plastering the surface with ridge-shape structure of the convex light diffusing piece on the surface without ridge-shape structure of the concave light diffusing piece, and enabling an included angle to be formed between the two ridge-extending directions of the two light diffusing pieces.

20 2. The high brightness diffuser of claim 1, wherein the included angle is 45°.

25 3. The high brightness diffuser of claim 1, wherein, with an inter-ridge distance being defined as the distance between the ridgelines of the two adjacent large ridges, and a ridge height being defined as the difference of altitude between the ridgeline and the line separating the large ridge and the small ridge, the inter-ridge distances are equal to each other and the ridge heights are equal to each other.

30 4. The high brightness diffuser of claim 1, wherein, with an inter-ridge distance being defined as the distance between the ridgelines of the two adjacent small ridges, and a ridge height being defined as the difference of altitude between the ridgeline and the line separating the large ridge and the

small ridge, the inter-ridge distances are equal to each other and the ridge heights are equal to each other.

5 5. The high brightness diffuser of claim 1, wherein, with an inter-ridge distance being defined as the distance between the ridgelines of the two adjacent concave ridges, and a ridge height being defined as the difference of altitude between the ridgeline and the line separating the large ridge and the small ridge, the inter-ridge distances are equal to each other and the ridge heights are equal to each other.

10 6. The high brightness diffuser of claim 1, wherein both the convex light diffusing piece and the concave light diffusing piece further comprise respectively a substrate, a ridge-shaped layer and a diffusion layer consisted of a thin transparent layer having a rugged external surface and numerous light diffusing particles uniformly dispersed within the thin transparent layer, and the substrate is sandwiched in between the ridge-shaped layer and the diffusion layer.

15 7. The high brightness diffuser of claim 1, wherein both the convex light diffusing piece and the concave light diffusing piece further comprise respectively a substrate, a ridge-shaped layer and a diffusion layer consisted of a thin transparent layer having a rugged external surface facing
20 toward the ridge-shape layer and numerous light diffusing particles uniformly dispersed within the thin transparent layer, and the diffusion layer is sandwiched in between the ridge-shaped layer and the substrate.

8. A high brightness diffuser, comprising:

25 two convex light diffusing piece with ridge-shape structure arranged on a surface thereof, being consisted of a plurality of large convex ridges and a plurality of small convex ridges, wherein, each of the convex ridges has a ridgeline, and the large ridge and small ridge are interlace-arranged, and the plural ridges along with the associated ridgelines are extending toward a same direction;

30 wherein, the two convex light diffusing pieces are stacked up by plastering the surface with ridge-shape structure of the convex light diffusing piece on the surface without ridge-shape structure of the other

convex light diffusing piece, and enabling an included angle to be formed between the two ridge-extending directions of the two convex light diffusing pieces.

9. The high brightness diffuser of claim 8, wherein the included angle is 8.5°.

10. The high brightness diffuser of claim 8, wherein, with an inter-ridge distance being defined as the distance between the ridgelines of the two adjacent large ridges, and a ridge height being defined as the difference of altitude between the ridgeline and the line separating the large ridge and the small ridge, the inter-ridge distances are equal to each other and the ridge heights are equal to each other.

11. The high brightness diffuser of claim 8, wherein, with an inter-ridge distance being defined as the distance between the ridgelines of the two adjacent small ridges, and a ridge height being defined as the difference of altitude between the ridgeline and the line separating the large ridge and the small ridge, the inter-ridge distances are equal to each other and the ridge heights are equal to each other.

12. The high brightness diffuser of claim 8, wherein the convex light diffusing piece further comprises a substrate, a ridge-shaped layer and a diffusion layer consisted of a thin transparent layer having a rugged external surface and numerous light diffusing particles uniformly dispersed within the thin transparent layer, and the substrate is sandwiched in between the ridge-shaped layer and the diffusion layer.

13. The high brightness diffuser of claim 1, wherein the convex light diffusing piece further comprises a substrate, a ridge-shaped layer and a diffusion layer consisted of a thin transparent layer having a rugged external surface facing toward the ridge-shape layer and numerous light diffusing particles uniformly dispersed within the thin transparent layer, and the diffusion layer is sandwiched in between the ridge-shaped layer and the substrate.